

Room Light Immunity in the Agilent Cary 60 UV-Vis Spectrophotometer

A comparison of the effects of room light exposure vs a closed lid



Introduction to Room Light Immunity

Inconsistent results and user errors due to external lighting interference are common issues in UV-Vis spectrophotometric analysis. These challenges can compromise accuracy, especially in open-lid scenarios or less-controlled environments.

The [Agilent Cary 60 UV-Vis spectrophotometer](#) is designed to maintain outstanding accuracy even when the lid is open. Minimizing the influence of external lighting reduces user inconsistencies and delivers consistent, reliable results. Therefore, room light immunity ensures that analyses remain dependable, whether operating internally or externally (e.g., when using fiber optic probe) to the sample compartment.

Key benefits of room light immunity

The room light immunity capability of the Cary 60 UV-Vis spectrophotometer provides a range of benefits:

- 1** **Consistent accuracy:** Precise measurements are achieved regardless of whether the lid is open or closed, reducing the interference of room light on the results.
- 2** **Enhanced flexibility:** Measurements can be conducted without closing the lid, allowing for faster throughput and easier handling of samples.
- 3** **Reduced user error:** The effect of external light is minimized, lowering the risk of compromised data due to environmental factors.
- 4** **Versatile applications:** Room light immunity makes the spectrophotometer ideal for high-throughput labs, remote measurements, or experiments requiring continuous access to the sample during analysis (such as reagent addition during kinetic measurement).



Cary 60 UV-Vis Spectrophotometer

Instrument Features

The Cary 60 UV-Vis spectrophotometer offers a robust solution for accurate and reproducible measurements. The spectrophotometer is engineered to maintain accuracy even while exposed to ambient light and has unique features that contribute to this capability.

Equipped with a xenon source lamp and a highly focused beam image, the Cary 60 UV-Vis ensures precise measurements of small volumes, enabling swift data collection and minimizing ambient light interference. The Cary 60 UV-Vis is also compatible with a range of accessories such as the fiber optic dip probe.

10 Year
Xenon Flash Lamp
Replacement Warranty

The Cary 60 UV-Vis has been independently audited for its environmental impact and has received the ACT (Accountability, Consistency, Transparency) label, verified by My Green Lab. The label provides information about the environmental impact of the Cary 60 UV-Vis throughout its entire life cycle. The robustness and reliability of the lamp, as reflected by its 10-year guarantee, reduces any potential replacement and revalidation costs, and maximizes instrument uptime.

ACT.
The Environmental Impact Factor Label

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Comparing open vs closed-lid measurements

To demonstrate the performance of the Cary 60 UV-Vis under room light, measurements were conducted with the lid both open and closed using a diluted green food dye solution (Figures 1 and Table 1). This setup allowed for the detection of any slight discrepancies in absorbance due to room light exposure.

Cary 60 UV-Vis performance

The absorbance measurements at wavelengths 256, 421, and 629 nm show minimal differences between the open- and closed-lid conditions. The difference between the average values are 0.0002 at 256 nm, 0.0002 at 421 nm, and 0.0000 at 629 nm. The standard deviation reiterates the consistency of the measurements with the lid open or closed. These results demonstrate the stability and resistance of the Cary 60 UV-Vis to ambient light interference.

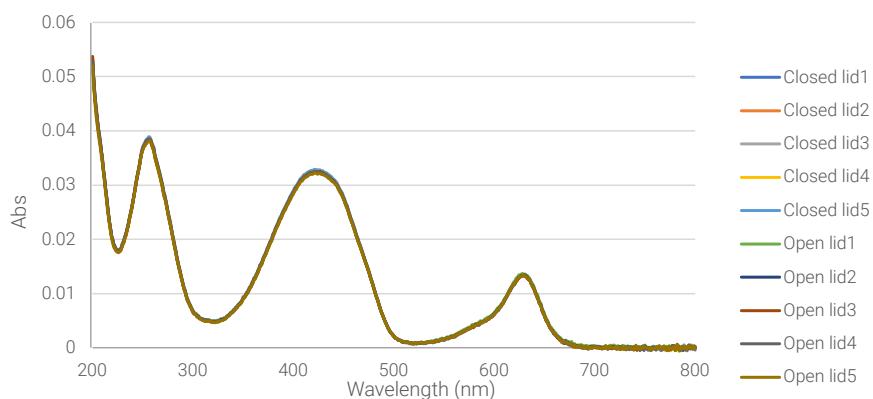


Figure 1. Agilent Cary 60 UV-Vis spectrophotometer wavelength scans with the lid open and closed.

Absorbance Readings at Peak Maximum

	256 nm	421 nm	629 nm
Closed Lid			
Repeat 1	0.0384	0.0325	0.0133
Repeat 2	0.0388	0.0328	0.0133
Repeat 3	0.0385	0.0327	0.0135
Repeat 4	0.0385	0.0325	0.0134
Repeat 5	0.0389	0.0329	0.0134
Average	0.0386	0.0327	0.0134
Standard Deviation	0.0002	0.0002	0.0001
Open Lid			
Repeat 1	0.0384	0.0326	0.0136
Repeat 2	0.0385	0.0325	0.0133
Repeat 3	0.0385	0.0325	0.0133
Repeat 4	0.0384	0.0325	0.0133
Repeat 5	0.0381	0.0322	0.013
Average	0.0384	0.0325	0.0134
Standard Deviation	0.0002	0.0002	0.0001

Table 1. Agilent Cary 60 UV-Vis spectrophotometer wavelength scan absorbance readings with the lid open and closed.

Comparison to Standard Instrument

How do these numbers stack up against other spectrophotometers? A comparison was conducted on another instrument void of room light immunity (Figure 2 and Table 2).

In Figure 2, clear discrepancies between the open- and closed-lid scenarios were observed, highlighting the impact of room light on the recorded spectra, a phenomenon not seen for the Cary 60 UV-Vis.

The ability of the Cary 60 UV-Vis to obtain precise measurements with the lid open adds a level of convenience and flexibility, making these spectrophotometers suitable for a wide range of analytical needs.

Enhanced room light immunity translates into faster and more efficient measurements, reducing the need for time-consuming adjustments or remeasurements. These instruments are designed to provide consistent and accurate results, regardless of the lid being open or closed.

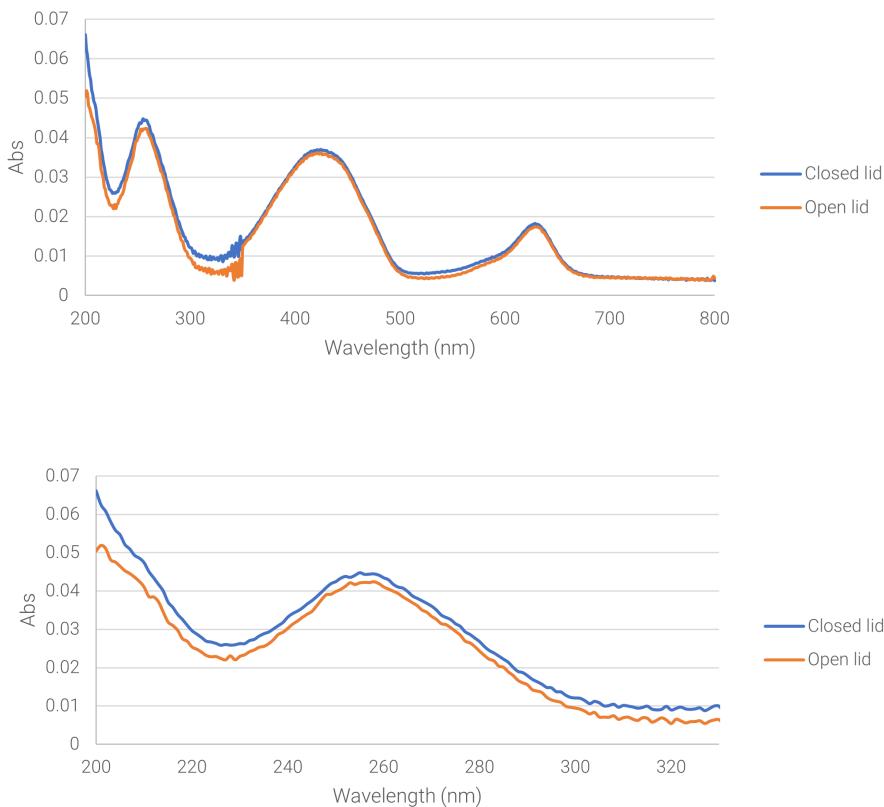


Figure 2. Wavelength scans with the lid open and closed on an instrument without room light immunity.

Proven Results

In summary, the Agilent Cary 60 UV-Vis spectrophotometer represent a significant advancement in spectrophotometry through its sophisticated room light immunity technology. Their ability to deliver precise measurements regardless of the lid being open dramatically reduces the potential for compromised data. Whether in routine laboratory work or complex research environments, the Cary 60 UV-Vis offers the precision and flexibility needed to ensure that your results are consistently accurate, even in challenging lighting conditions.

Further information

- [Cary 60 UV-Vis Spectrophotometer](#)
- [Cary WinUV Software for UV-Vis Applications](#)
- [UV-Vis Spectroscopy & Spectrophotometer FAQ](#)
- [UV-Vis Spectrophotometer Uses & Applications](#)

Learn more:

www.agilent.com/chem/cary60

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